

REMARKS

In the final office action mailed September 21, 2005, claims 58, 60 - 63, 68 and 70 were rejected under 35 U.S.C. §102(b) over U.S. Patent No. 4,712,223 (to Ishijima et al.); claims 59 and 69 were indicated as being allowable if rewritten in independent form; and claims 35 - 57 and 64 - 67 were allowed. Each of independent claims 58, 61 and 68, therefore, stands rejected over the Ishijima et al. reference.

Responsive to the final office action, claims 61 and 68 are each amended to change the language "X-ray detector that is at least adjacent the window" to "X-ray detector that is on the window". The cited Ishijima et al. reference discloses in Figure 2 thereof an X-ray generator in which a detector 8 is positioned some distance away from the X-ray tube 1 as shown below:

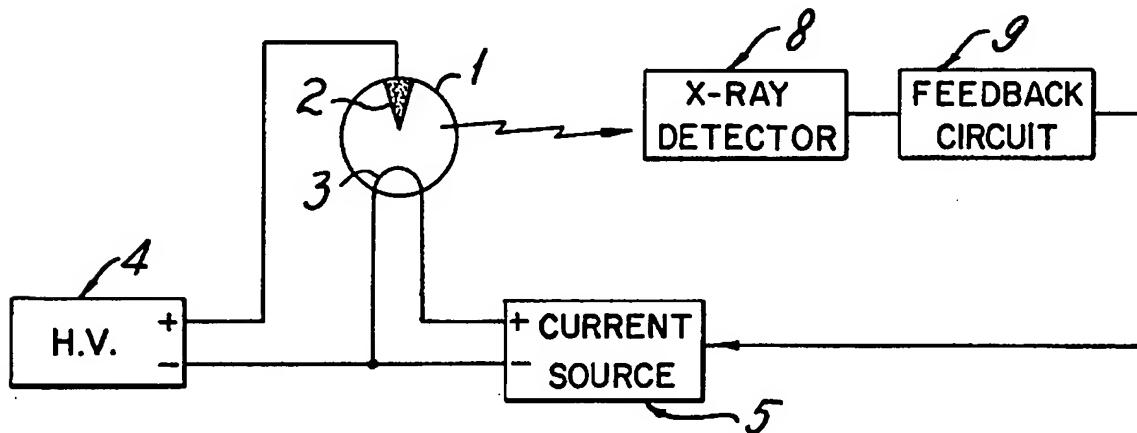


FIG. 2

The accompanying text in the specification of Ishijima et al. states that the control system includes a pulse height discriminator in the feedback circuit 9, and that the pulse height discriminator:

serves to more suitably control the constant current source 5, because the absorption coefficient of the atmosphere is dependent on the X-ray energy to be absorbed and so the X-ray spectrum to be sued for the analysing is preferably selected among all the X-ray irradiated from the X-ray tube or others for the feedback control.

Ishijima et al., col. 2, lines 43 - 49. Applicants submit that this means that the pulse height discriminator is used to filter out feedback for X-rays within the spectrum that is highly absorbed by the atmosphere since X-rays of that spectrum are unreliable in providing feedback control of the X-ray tube. Clearly, therefore, the X-ray detector 8 is not positioned on or even substantially close to the X-ray tube 1 or any window thereof.

The X-ray generator shown in Figure 3 of Ishijima et al. includes X-ray detectors 8 and 10 that are positioned a distance from the X-ray tube 1 as shown below.

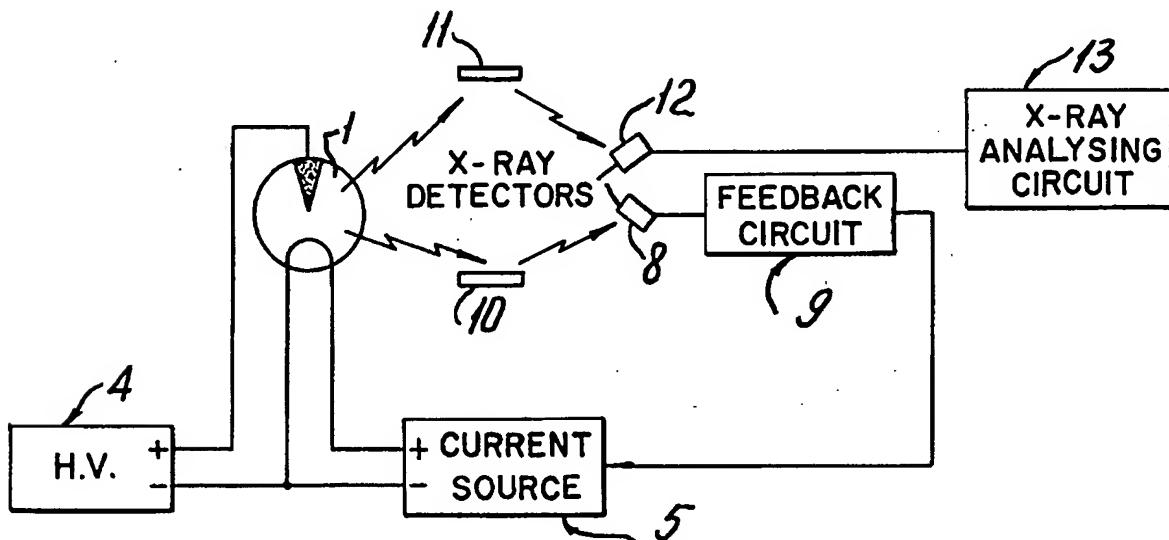


FIG. 3

The specification of Ishijima et al. states that X-rays irradiated from the X-ray tube 1 are applied both to a sample material 11 to be analysed and to a reference material 10 (Ishijima et al., col.2, lines 50 - 54). The specification further states that:

Sample material 11 and reference material 10 are preferably arranged, for instance, symmetrical with respect to the axis of the X-ray tube 1 to receive X-rays of equal intensity through equal paths.

Ishijima et al., col. 2, lines 54 - 57. Such paths must clearly have a non-trivial path length for there to be concern regarding the paths being equal. Clearly, therefore, the detector is not on or even substantially close to the X-ray tube 1 or any window thereof.

Each of independent claims 61 and 68, therefore, is in condition for allowance. Each of dependent claims 62 and 63 depends from claim 61 and further limits the subject matter thereof, and each of claims 69 and 70 depends from claim 68 and further limits the subject matter thereof. Each of claims 61 - 63 and 68 - 70 is in condition for allowance

Independent claim 58 requires, in part, an X-ray detector on which substantially all of the X-ray output impinges. None of the systems disclosed in Ishijima et al. disclose, teach or suggest such a system for the reasons discussed above. It is clear that the systems of Ishijima et al., being positioned some distance from the X-ray tube 1, receive a sample only of the X-rays from the tube 1, not substantially all of the X-rays from the tube 1. Claim 58, therefore, is submitted to be in condition for allowance. Each of dependent claims 59 and 60 depends from claim 58 and further limits the subject matter thereof. Each of claims 58 - 60, therefore, is submitted to be in condition for allowance.

Each of claims 35 - 70, therefore, is submitted to be in condition for allowance.

Favorable action consistent with the above is respectfully requested.

Respectfully submitted,



William E. Hilton
Registration No. 35,192
Gauthier & Connors LLP
225 Franklin Street, Suite 2300
Boston, Massachusetts 02110
Telephone: (617) 426-9180 x111